

REMARKS

Claims 1, 5, 7, 8, 11, 12, 15, 16, 19, 21-23, 25-42, 44-46, 48, 50, 53-55, 59 and 60 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1, 23 and 59 for minor details. It is Applicant's position that the changes to claims 1, 23 and 59 do not raise any new issues and do not materially alter the scope of the claims.

Claims 1, 5, 7, 8, 11, 12, 15, 16, 19, 21-23, 25-42, 44-46, 48, 50, 53-55, 59 and 60 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Fadaie (U.S. 5,328,319).

Applicant's representative would like to thank the Examiner for speaking with Applicant's representative on February 13, 2009. During the discussion with the Examiner, Applicant's representative argued that Fadaie fails to teach or suggest modifying a first geometrical arrangement after the objects are gripped to form a modified geometrical arrangement. The Examiner stated that the article engaging means 14 of Fadaie modifies a first geometrical arrangement to form a modified geometrical arrangement. Applicant's representative responded by stating that the article engaging means 14 of Fadaie does not modify the geometrical arrangement of the cups since even after gripping the cups and rotating the cups 180° the geometrical arrangement of the cups remains exactly the same (i.e. the cups are arranged in a rectangular shape before the cups are rotated and the cups remain in the same rectangular shape after the cups are rotated). Applicant's representative further argued that even assuming that the article engaging means 14 of Fadaie did modify the geometrical arrangement of the cups, the packaging density of the cups is not modified after the article

engaging means 14 grips the cups. The Examiner appeared to agree with Applicant's representative's arguments, particularly regarding the arguments directed to the modified packaging density, but stated that the arguments would be further considered once the response was filed.

The present invention relates to a device and a method for handling substantially rod-shaped objects. The device and method comprise objects that are in a first geometrical arrangement. The first geometrical arrangement has a first packaging density. A portion of each object is gripped with a gripping device such that the objects are positioned in the first geometrical arrangement. The first geometrical arrangement is modified after gripping the objects by moving the objects with the gripping device such that the objects form a modified geometrical arrangement having a modified packaging density. The modified packaging density is greater than the first packaging density. The modified geometrical arrangement is different from the first geometrical arrangement. This advantageously allows the spacing of the objects to be optimized so that more objects can be arranged within a loading aid since the packaging density is significantly increased.

Fadaie discloses a mixing station at which is located a robot 10. The robot 10 includes a robotic arm 12 having an article engaging means 14 attached thereto. Four conveyors 16, 18, 20 and 22 receive containers in the form of cartons or boxes 24 filled with plastic cups from pallets. The boxes 24 are discharged onto an intermediate conveyor 26. Intermediate conveyor 26 transports containers 24 to a flap opening station 28 at which the flaps are opened and routed to a feed conveyor 30 which moves the opened boxes to the mixing station at robot 10.

When arriving at the mixing station the boxes are fully opened at the tops thereof to disclose the stacks of cups 32 within the interiors of the containers. Retention bars 36 are provided at the mixing station to prevent the flaps of the containers from closing. An article engaging means 24 is positioned by the robot over two adjacent boxes 24 located at the mixing station. A robotic arm 12 lowers the article engaging means 24 so that the follower heads 56 of the follower elements 52 engage and enter into the top most cups of the stacks disposed thereunder. Clamping elements 50 engage the cups and settle between adjacent cups. The engaged stack of cups are removed from their respective containers by raising the article engaging means 14 so that the bottoms of the stacks of cups clear the tops of the containers. The robot and the article engaging means cooperate to transport the removed stacks of cups to containers differing from the containers from which they were removed so that a desired mix of colors within any given container can be obtained.

Fadaie fails to teach and fails to suggest the combination of gripping objects in a first geometrical arrangement and moving the objects after the objects have been gripped in the first geometrical to form a modified geometrical arrangement of the objects having a modified packaging density. According to the invention, the modified packaging density is greater than the packaging density of the first geometrical arrangement of the objects. At most, Fadaie discloses an article engaging means 14 that engages two sets of two rows of cups and rotates the cups after gripping them. According to Fadaie, the article engaging means 14 then deposits the cups in the boxes such that the inserted rows take up the spaces of the removed rows. However, the article engaging means 14 of Fadaie does not modify the packaging density of the

cups after the article engaging means 14 grips the cups. This disadvantageously fails to optimize the spacing of the objects as featured in the present invention. Compared with Fadaie, the objects of the present invention are gripped in a first geometrical arrangement and the first geometrical arrangement is modified after gripping the objects by moving the objects with the gripping device such that the objects form a modified geometrical arrangement having a modified packaging density. This advantageously allows the spacing between objects to be modified so that more objects can fit into a loading aid. In contrast to Fadaie, the article engaging means 14 does not modify the packaging density of the cups after the cups are gripped since the article engaging means 14 of Fadaie only picks up and rotates the cups, but does not change the spacing between the cups such that the packaging density of the cups is modified. Fadaie clearly teaches that the cups are gripped with the article engaging means 14 and the cups are rotated, but the same number of cups with the same packaging density is deposited back into the boxes once the cups have been rotated. As such, Fadaie fails to teach or suggest modifying a packaging density of a first geometrical arrangement of objects after the objects have been gripped such that a modified geometrical arrangement of objects is formed with a modified packaging density. Accordingly, the prior art as a whole takes a different approach and fails to teach or suggest important features of the claimed combination.

Fadaie also fails to teach and fails to suggest the combination of gripping objects in a first geometrical arrangement and moving the objects after the objects have been gripped in the first geometrical to form a modified geometrical arrangement of the objects. Fadaie merely discloses an article engaging means 14 that cooperates with a robot 10 to vary the mix of

articles in a container by engaging a plurality of articles and transferring the articles from a first location to a second location. According to Fadaie, the article engaging means 14 grips a geometrical arrangement of cups. The article engaging means 14 of Fadaie then rotates the geometrical arrangement of cups. However, the geometrical arrangement of cups of Fadaie is exactly the same when the cups are first gripped and when the cups are rotated. This is a significantly different approach than the present invention. According to the present invention, the objects are first gripped in a first geometrical arrangement and the objects are moved with a gripping device such that the objects form a modified geometrical arrangement. This advantageously optimizes the spacing between the objects so that more objects can fit into a loading aid. Fadaie fails to disclose such space optimizing advantages since Fadaie only discloses mixing or exchanging articles to vary the mix of articles in the containers, but Fadaie is void of any suggestion of altering a geometrical arrangement of the articles to form a modified arrangement of the articles by moving the articles as claimed. Fadaie clearly teaches that the article engaging means 14 engages the cups such the cups are in a rectangular arrangement and the cups remain in the same rectangular arrangement even after the cups are rotated. As such, the prior art as a whole takes a completely different approach and fails to teach or suggest each and every feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection and favorably consider claims 1, 23 and 59 as now presented and all claims that respectively depend thereon.

Favorable consideration on the merits is requested.

Respectfully submitted
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Attached: Petition for One Month Extension of Time

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE
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0410.